AMENDMENT TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the

application. The following listing provides the amended claims with the amendments

marked with deleted material crossed out and new material underlined to show the

changes made.

Claims 1-26. (Canceled)

27. (Currently Amended) A method of routing a net within a region of an

integrated-circuit ("IC") layout, the method comprising:

a) for the net, identifying a route that uses a first path within the

region, wherein the first path shares a common region in the IC region with a set of

adjacent paths, wherein said set has at least one path and each path in the set is adjacent

to the first path;

**b**) determining whether embedding the route in the region will cause

congestion about the first path and the set of paths to exceed a threshold combined

capacity for routes to traverse along the first path and the set of paths value; and

c) embedding the route for the net based at least partially on a

determination that embedding the route in the region will not cause congestion about the

first path and the set of paths to exceed the threshold combined capacity for routes to

traverse along the first path and the set of paths value.

28. (Canceled)

-- 3 --

8/26/2004 4:35 PM FROM: Stattler Johansen Stattler Johansen \_ TO: +1 (703) 872-9306 PAGE: 009 OF 028

(Currently Amended) The method of claim 27 further comprising 29.

discarding the route if embedding the route causes the congestion about the paths to

exceed the threshold combined capacity for routes to traverse along the first path and the

set of paths value.

5.

30. (Previously Presented) The method of claim 27, wherein congestion

along the paths includes wireflow along the paths.

31. (Previously Presented) The method of claim 30, wherein congestion

along the paths further includes blockages of the paths.

32. (Currently Amended) The method of claim 27, wherein the set of paths

includes a second path, and the threshold combined capacity for routes to traverse along

the first path and the set of paths value equals the sum of the routing capacities of the first

and second paths minus the routing capacity shared between the first and second paths.

33. (Previously Presented) The method of claim 32, wherein the first

and second paths are diagonal paths that are defined on one routing layer.

34. (Previously Presented) The method of claim 33, wherein the first

and second paths are in the same direction.

35. (Currently Amended) The method of claim 27, wherein the set of paths

includes a second path and a third path, and the threshold combined capacity for routes to

traverse along the first path and the set of paths value equals the routing capacity of the

-- 4 --

Attorney Docket: SPLX.P0023

PTO Serial: 10/040,963

8/26/2004 4:35 PM FROM: Stattler Johansen Stattler Johansen \_ TO: +1 (703) 872-9306 PAGE: 010 OF 028

first, second, and third paths minus the routing capacity shared among of the first, second,

and third paths.

36. (Previously Presented) The method of claim 35, wherein the first,

second, and third paths are diagonal paths that are defined on one routing layer.

37. (Previously Presented) The method of claim 36, wherein the first,

second, and third paths are in the same direction.

38. (Currently Amended) The method of claim 27, wherein the set of paths

includes a second path and a third path, wherein the first and second paths are diagonal

paths, and the third path is a Manhattan path, wherein the third Manhattan path represents

wireflow in the Manhattan and diagonal directions, wherein the threshold combined

capacity for routes to traverse along the first path and the set of paths value equals the

routing capacity of the first, second, and third paths minus the routing capacity shared

among of the first, second, and third paths.

39. (Currently Amended) The method of claim 27, wherein the set of paths

includes second, third, fourth, and fifth adjacent paths, wherein the first through fourth

paths are diagonal paths, and the fifth path is a Manhattan path, wherein the fifth path

represents wireflow in the Manhattan and diagonal directions, wherein the threshold

combined capacity for routes to traverse along the first path and the set of paths value

equals the routing capacity of the first through fifth paths minus the routing capacity

shared among of the first through fifth paths.

-- 5 --

Attorney Docket: SPLX.P0023

PTO Serial: 10/040,963

8/26/2004 4:35 PM FROM: Stattler Johansen Stattler Johansen \_ TO: +1 (703) 872-9306 PAGE: 011 OF 028

40. (Previously Presented) The method of claim 27, wherein said

determination of whether to embed the route is formulated as a constraint of a linear

programming problem.

41. (Previously Presented) A method of routing nets within a region of

an integrated-circuit ("IC") layout, the method comprising:

partitioning the IC region into a plurality of sub-regions, wherein a a)

plurality of paths exist between the sub-regions, each path representing a plurality of

routing tracks, and at least a first path shares routing tracks with a set of paths;

b) for the net, identifying a route that uses the first path;

c) determining whether embedding the route will cause congestion

along the first path and the set of paths to exceed the number of tracks available along the

first path and the set of paths; and

embedding the route for the net based at least partially on a d)

determination that embedding the route will not cause the congestion along the first path

and the set of paths to exceed the number of tracks available along the first path and the

set of paths.

42. (Currently Amended) A method of routing nets within a region of an

integrated-circuit ("IC") layout, the method comprising:

-- 6 --

partitioning the IC region into a plurality of sub-regions, wherein a a) plurality of paths exist between the sub-regions, each path representing a plurality of

routing tracks, and at least a first path shares routing tracks with a set of paths;

b) for the net, identifying a route that uses the first path; and

determining whether to embed the route at least partially based on c)

the number of tracks available along the first path and the set of paths; wherein the

number of available tracks equals the number of tracks along the first path and along the

set of paths minus the number of tracks shared between the first path and the set of paths

minus the number of tracks used and blocked along the first path and the set of paths.

43. (Previously Presented) The method of claim 42, wherein the

number of tracks available along the first path and the set of paths is not the only criteria

for determining whether to embed the route.

44. (Previously Presented) The method of claim 41, wherein the set of

paths includes a second path that represents routing tracks on a routing layer that also

includes at least some of the routing tracks of the first path.

45. (Previously Presented) The method of claim 44, wherein the first

and second paths are diagonal paths that are in the same direction.

46. (Previously Presented) The method of claim 44, wherein the first

path is a diagonal path and the second path is a Manhattan path.

-- 7 --

8/26/2004 4:35 PM FROM: Stattler Johansen Stattler Johansen \_ TO: +1 (703) 872-9306 PAGE: 013 OF 028

47. (Previously Presented) The method of claim 41, wherein the set of

paths includes a second path and a third path, wherein the first, second, and third paths

are diagonal paths that are in the same direction and that are defined on one routing layer.

48. (Previously Presented) The method of claim 41, wherein the set of

paths includes a second path and a third path, wherein the first and second paths are

diagonal paths, and the third path is a Manhattan path, wherein the third Manhattan path

represents a plurality of tracks in the Manhattan and diagonal directions.

49. (Previously Presented) The method of claim 41, wherein the set of

paths includes second, third, fourth, and fifth paths, wherein the first through fourth paths

are diagonal paths, and the fifth path is a Manhattan path, wherein the fifth path

represents a plurality of tracks in the Manhattan and diagonal directions.

50. (Currently Amended) A computer readable medium comprising a

computer program having executable code, the computer program for routing a net within

a region of an integrated-circuit ("IC") layout, the computer program comprising:

a) a first set of instructions for identifying a route for the net, said

route using a first path within the region, wherein the first path shares a common region

in the IC region with a set of adjacent paths, wherein said set has at least one path and

each path in the set is adjacent to the first path;

b) a second set of instructions for determining whether embedding the

route in the region will cause congestion about the first path and the set of paths to exceed

-- 8 --

8/26/2004 4:35 PM FROM: Stattler Johansen Stattler Johansen \_ TO: +1 (703) 872-9306 PAGE: 014 OF 028

a threshold combined capacity for routes to traverse along the first path and the set of

paths value; and

c) a third set of instructions for embedding the route for the net based

at least partially on a determination that embedding the route in the region will not cause

congestion about the first path and the set of paths to exceed the threshold combined

capacity for routes to traverse along the first path and the set of paths value.

51. (Currently Amended) The computer readable medium of claim 50

wherein the third set of instructions comprises a fourth set of instructions for discarding

the route when embedding the route causes the congestion about the paths to exceed the

threshold combined capacity for routes to traverse along the first path and the set of paths

value.

52. (Previously Presented) The computer readable medium of claim 50,

wherein congestion along the paths includes wireflow along the paths.

53. (Previously Presented) The computer readable medium of claim 52,

wherein congestion along the paths further includes blockages of the paths.

54. (Currently Amended) The computer readable medium of claim 50,

wherein the set of paths includes a second path, and the threshold combined capacity for

routes to traverse along the first path and the set of paths value equals the sum of the

routing capacities of the first and second paths minus the routing capacity shared between

the first and second paths.

-- 9 --

8/26/2004 4:35 PM FROM: Stattler Johansen Stattler Johansen \_ TO: +1 (703) 872-9306 PAGE: 015 OF 028

55. (Currently Amended) The computer readable medium of claim 50,

wherein the set of paths includes a second path and a third path, and the threshold

combined capacity for routes to traverse along the first path and the set of paths value

equals the routing capacity of the first, second, and third paths minus the routing capacity

shared among of the first, second, and third paths.

56. (Currently Amended) The computer readable medium of claim 50,

wherein the set of paths includes a second path and a third path, wherein the first and

second paths are diagonal paths, and the third path is a Manhattan path, wherein the third

Manhattan path represents wireflow in the Manhattan and diagonal directions, wherein

the threshold combined capacity for routes to traverse along the first path and the set of

paths value equals the routing capacity of the first, second, and third paths minus the

routing capacity shared among of the first, second, and third paths.

57. (Currently Amended) The computer readable medium of claim 50,

wherein the set of paths includes second, third, fourth, and fifth adjacent paths, wherein

the first through fourth paths are diagonal paths, and the fifth path is a Manhattan path,

wherein the fifth path represents wireflow in the Manhattan and diagonal directions,

wherein the threshold combined capacity for routes to traverse along the first path and the

set of paths value equals the routing capacity of the first through fifth paths minus the

routing capacity shared among of the first through fifth paths.

-- 10 --